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AALBORG UNIVERSITY
DENMARK

Student background and considerations regarding entrepreneurship and career choice

Findings from a survey among first-year students at Aalborg University 2020

Drejer, Ina; Gjerløv-Juel, Pernille; Nielsen, Kristian

Publication date:
2020

Document Version
Other version

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Drejer, I., Gjerløv-Juel, P., & Nielsen, K. (2020). *Student background and considerations regarding entrepreneurship and career choice: Findings from a survey among first-year students at Aalborg University 2020*. Aalborg University Business School. Aalborg University Business School Working Paper Series

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Working Paper

Aalborg University Business School

Student background and considerations regarding entrepreneurship and career choice

Findings from a survey among first-year students at Aalborg University 2020

Ina Drejer, Pernille Gjerløv-Juel and Kristian Nielsen¹

The report is published in collaboration with AAU Innovation

¹ IMPAKT, Aalborg University Business School. December 2020.

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Resumé (Danish summary)

Baggrund

Det er et mål i Aalborg Universitets strategi, *Viden for verden*, at øge iværksætteraktivitet og iværksætterlyst blandt Aalborg Universitets medarbejdere og studerende. For at imødekomme dette mål er der iværksat en handlingsplan for iværksætterindsatsen. Der er imidlertid begrænset viden om den faktiske iværksætteraktivitet og iværksætterlyst på AAU, især hos de studerende, som ofte udfolder deres iværksætteraktiviteter uden for universitets formelle rammer.

Som et led i at undersøge, understøtte og dokumentere effekten af iværksætterindsatsen blev der for første gang i 2018, og efterfølgende i 2019 og 2020, rundsendt spørgeskemaer til de nye førsteårsstuderende ved AAU. Med disse undersøgelser ønsker vi at undersøge om (og hvordan), de studerendes iværksætterlyst og arbejdsværdier udvikler sig i løbet af deres studietid, og hvordan iværksætterlysten eventuelt påvirkes af iværksætterindsatsen. De studerende vil derfor modtage et tilsvarende spørgeskema igen efter henholdsvis 3 og 5 år. Efter planen bliver spørgeskemaet også sendt til alle nye førsteårsstuderende i de kommende år, således det bliver en del af en tilbagevendende kortlægning af iværksætterlysten blandt AAU-studerende og AAU's impact på de studerendes iværksætterlyst og arbejdsværdier.

Den forhåndenværende rapport, der rapporterer resultater fra den seneste spørgeskemaundersøgelse fra 2020, er en opdatering af de to foregående versioner, som indeholder data fra 2018- og 2019-undersøgelserne. Den forhåndenværende udgave indeholder sammenligninger med de tidligere års undersøgelser, og fremhæver de tilfælde, hvor interessante forskelle eller begyndende mønstre identificeres.

Resultater

1188 ud af 4213 førsteårsstuderende har svaret på spørgeskemaet, hvilket giver en svarprocent på 28,2 pct. Ved distribuering af spørgeskemaet manglede 338 e-mailadresser, hvorfor spørgeskemaet kun er blevet distribueret til 3875 ud af de 4213 førsteårsstuderende. Den reelle svarprocent (på distribuerede spørgeskemaer) er derfor 30,7 pct. Tabel 1 viser, hvorledes svarprocenterne fordeler sig på de respektive fakulteter.

Svarprocent fordelt på fakultet, 2020

	Population*		Respondenter		Svarprocent
Det Samfundsvidenskabelige Fakultet	1242	29,5%	312	26,3%	25,1%
Det Humanistiske Fakultet	782	18,6%	199	16,8%	25,5%
Det Sundhedsvidenskabelige Fakultet	389	9,2%	133	11,2%	34,2%
Det Tekniske Fakultet for IT og Design	1058	25,1%	192	16,2%	18,2%
Det Ingeniør- og Naturvidenskabelige Fakultet	742	17,6%	297	25,0%	40,0%
Ved ikke			44	3,7%	
Manglende besvarelse			11	0,9%	
I alt	4213	100,0%	1188	100,0%	28,2%
Distribueret til	3875				30,7%

*Populationen svarer til antal førsteårsstuderende optaget via den koordinerede tilmelding (KOT). Spørgeskemaet er distribueret til 3875 førsteårsstuderende, for hvem e-mailadresser var tilgængelig for forskerne på tidspunktet for undersøgelsen. Det antages, at der ingen systematik er i, hvordan de manglende 338 e-mailadresser fordeler sig på fakulteter og køn.

Som det fremgår af ovenstående tabel, er svarprocenten betydeligt højere end gennemsnittet blandt studerende ved det Ingeniør- og Naturvidenskabelige Fakultet og det Sundhedsvidenskabelige Fakultet, og lavest blandt studerende fra det Tekniske Fakultet for IT og Design. Kvindelige studerende er også overrepræsenteret i denne undersøgelse. De udgør 55,5 pct. af respondenterne, selvom de blot udgør 48,8 pct. af førsteårsstuderende ved AAU. Vi tager højde for disse skæve fordelinger ved at vægte besvarelserne i forhold til både fakultet og køn. Vægtningen er foretaget ud fra den samlede population af 4213 førsteårsstuderende.

Lysten til at starte egen virksomhed og blive iværksætter

Vi belyser de studerendes **iværksætterlyst** ud fra flere spørgsmål. Vi spørger eksempelvis, om de mener, at iværksætteri er et attraktivt karrierevalg, om de allerede har iværksættererfaring, og om de har taget aktive skridt henimod at starte egen virksomhed.

I lighed med undersøgelsen fra 2019, så finder vi *ikke*, at studerendes opfattelse af iværksætteri som et karrierevalg varierer betydeligt på tværs af fakulteterne, ligesom der ikke er betydelig forskel på erfaringerne med iværksætteraktivitet på tværs af fakulteterne. I forhold til hvorvidt de har taget aktive skridt henimod at starte egen virksomhed, finder vi derimod statistisk signifikante forskelle på tværs af fakulteterne. Det er således især studerende fra Det Samfundsvidenskabelige Fakultet, efterfulgt af studerende fra det Humanistiske Fakultet og Det Tekniske Fakultet for IT og Design, der har taget aktive skridt henimod at starte egen virksomhed. Sådanne aktive skridt kan bestå i at have diskuteret en forretningsidé med andre eller udarbejdet en forretningsplan, deltaget i iværksætterrådgivning eller iværksætterinkubator, forsøgt at få finansiering eller kontaktet potentielle medstiftere, ansatte, leverandører og/eller kunder.

I modsætning til de tidligere år finder vi ingen betydelige forskelle i, hvorvidt mænd og kvinder opfatter iværksætteri som et attraktivt karrierevalg. Men færre kvindelige førsteårsstuderende har taget aktive skridt henimod at starte egen virksomhed, og de har i mindre grad end mænd iværksættererfaring, når de begynder på deres uddannelse. Dette er i overensstemmelse med, at mænd er overrepræsenteret i

iværksætterstatistikkerne. Således svarer kun 3,5 pct. af kvinderne mod 7,4 pct. af mændene, at de tidligere har drevet eller fortsat driver egen virksomhed.

Spørgeskemaet afdækker også de studerendes **selvvurderede iværksætter-kompetencer**. Her finder vi igen en mindre positiv vurdering af egne evner blandt kvindelige studerende sammenlignet med mændene. Eksempelvis svarer blot 19,7 pct. af kvinderne (mod 27,0 pct. af mændene), at de i høj grad eller nogen grad har de evner og færdigheder, der skal til for at etablere og drive egen virksomhed. Denne forskel mellem kønnene er dog snævret ind i forhold til de foregående år. Når vi kigger på tværs af fakulteterne, finder vi, at studerende fra det Sundhedsvidenskabelige Fakultet har mindre positive vurderinger af egne evner til at starte og drive egen virksomhed sammenlignet med de resterende fakulteter. Studerende fra det Samfundsvidenskabelige Fakultet ligger derimod i toppen i forhold til den andel, der vurderer, at de i høj eller nogen grad har de evner og færdigheder, der skal til for at etablere og drive egen virksomhed.

Spørgeskemaet indeholder en særlig sektion, der omhandler de **arbejdsværdier/arbejdskarakteristika**, de studerende finder særligt vigtige i forbindelse med valg af beskæftigelse. Det er interessant at afdække de studerendes arbejdsværdier, da tidligere forskning har vist, at der er væsentlig forskel på de arbejdsværdier, der vægtes højest hos henholdsvis lønmodtagere og iværksættere. En afdækning af studerendes arbejdsværdier vil derfor vise, om de i udgangspunktet har iværksætterrelaterede arbejdsværdier, samt – i forbindelse med en gentagelse af spørgsmålene 3 og 5 år efter studiestart – om deres arbejdsværdier eventuelt påvirkes og ændres i løbet af studietiden og som følge af AAUs iværksætterindsats. De studerende, der mener, at det er et attraktivt karrierevalg at starte og drive egen virksomhed, svarer oftere end de øvrige studerende, at følgende arbejdskarakteristika er vigtige for dem: mulighed for at arbejde selvstændigt, at arbejdet giver en høj indkomst, samt at arbejdet er et godt springbræt for karrieren. Omvendt rangerer et godt socialt arbejdsmiljø og det, at arbejdet kan udføres tilfredsstillende med de ressourcer, der er til rådighed, lavere blandt denne gruppe af studerende. Det er ikke overraskende, at de studerende, der vægter selvstændighed højt, også finder iværksætteri mere attraktivt.

Introduction

This report is an updated version of the two first reports on “Survey on student background and considerations regarding entrepreneurship and career choice”, which presented the results from surveys among first year students carried out in October 2018 and 2019, respectively. The present report is based on the third round of the survey from 2020, examining Aalborg University (AAU) students’ background and considerations regarding entrepreneurship and career choice. In addition, this updated version includes references to the first surveys from 2018 and 2019, where it highlights relevant differences between and emerging patterns across the three annual surveys.

The purpose of these reoccurring annual surveys is to facilitate the development and, in particular, the evaluation of the entrepreneurship initiatives at AAU. The surveys provide empirical data on students’ attitudes towards entrepreneurship and their previous entrepreneurship experience at the time of their enrolment at AAU. Together with the first surveys of 2018 and 2019, this survey can thus serve as a baseline for future assessments and evaluations of the effects of the entrepreneurship initiative and AAU training in general by observing potential changes in attitudes towards entrepreneurship and entrepreneurial behaviour during enrolment at AAU.

In the following, we present the results of the 2020 survey. Appendix A presents the full questionnaire.

Below is an introductory summary of selected results.

Summary of main results

- Women are less oriented towards entrepreneurship compared to men: Fewer female students have entrepreneurial experience prior to their enrolment at AAU; they report a less positive self-assessment of whether they possess the skills and abilities necessary to establish and manage a business (*entrepreneurial self-efficacy*); and relatively few female students have taken active steps towards establishing a business (*nascent entrepreneurship*). These differences are consistent with the 2018 and 2019 surveys. The prior years’ surveys also found that female students to a significantly lesser degree than male students found that entrepreneurship is an attractive career choice, but no statistically significant differences across gender in relation to this are found in the current survey.
- When ranking important factors for choosing a career after graduation, students who find establishing and managing their own business an attractive career choice emphasise
 - o the opportunity to work independently,
 - o a high income,
 - o the work being a good stepping stone for the further career*more* than students who do not find entrepreneurship an attractive career choice. On the hand, students who find establishing and managing their own business an attractive career choice emphasise
 - o the possibility of carrying out the work satisfactorily with the resources available,
 - o a good social working environment*less* than students who do not find entrepreneurship an attractive career choice.

Data collection

The survey was carried out among 3,875 first-year students at Aalborg University in October 2020. Aalborg University's Study Service Office provided the email addresses of the 3,875 students (of a population of 4,213 first-year students)¹

The questionnaire was distributed to the students via SurveyXact on 30th September 2020, and reminders were sent on 7th October 2020 and 14th October 2020 to those who had not yet responded. The data collection was completed on 23rd October 2020. Of the 1188 students who responded to the survey, 52 provided only partial completions of the questionnaire. The overall response rates were 30.7% and 28.2% for the distributed questionnaires and the full population, respectively. This is considerably higher than for the two previous years, where response rates for the total population were 21.8% and 22.2%, respectively.

The 2020-questionnaire is identical to the ones distributed in 2018 and 2019. Prior to the 2018 distribution, the questionnaire was tested on employees of the Department of Business and Management (now Aalborg University Business School).

Respondents could choose to respond to a Danish or an English language version of the questionnaire.

Respondents

Table 1 presents the population and response rates by faculty. The latter shows considerable variation across faculties. Table 1 reveals a considerable overrepresentation of students from the Faculty of Engineering and Science among the respondents, while students from the Technical Faculty of IT and Design have the lowest response rate. The high response rate among students from the Faculty of Engineering and Science is a recurring occurrence across the annual surveys.

Table 1. Overview of respondents

	Population		Respondents		Response rate
The Faculty of Social Sciences	1242	29.5%	312	26.3%	25.1%
The Faculty of Humanities	782	18.6%	199	16.8%	25.5%
The Faculty of Medicine	389	9.2%	133	11.2%	34.2%
The Technical Faculty of IT and Design	1058	25.1%	192	16.2%	18.2%
The Faculty of Engineering and Science	742	17.6%	297	25.0%	40.0%
Do not know			44	3.7%	
Missing			11	0.9%	
Total	4213	100.0%	1188	100.0%	28.2%
Distributed	3875				30.7%

¹ The questionnaire was distributed to 3,875 email addresses provided by AAU's Study Service. This corresponds to 92% of the full population of 4,213 first-year students. We cannot test for, but assume, no systematic differences between the 3,875 students who received the questionnaire and the 338 students who did not. Hence, when weighing the results of the questionnaire by faculty and gender, we rely on the distribution of the full population of 4,213 first-year students. Furthermore, we assume that no non-active students have answered the questionnaire.

As mentioned above, the questionnaire was only distributed to 3,875 students out of 4,213 owing to missing email information for 338 students. When weighing the respondents, we assume that missing e-mail addresses are equally distributed across faculties.

Table 2 presents the gender distribution of the respondents by faculty compared to the composition of the population. Table 2 reveals a majority (55.1%) of female students among the respondents. This does not reflect the true gender distribution of the population, where 51.2% are male and 48.8% female. Female students have been more inclined to answer the questionnaire than male students in all three annual surveys.

Table 2. Gender distribution by faculty, population and respondents

	Female		Male		Do not want to answer	Total	
	Population	Respondents	Population	Respondents	Respondents	Population	Respondents
The Faculty of Social Sciences	697	182	545	129	1	1242	312
	56.1%	58.3%	43.9%	42.9%	0.3%	100.0%	
The Faculty of Humanities	571	174	211	25	0	782	199
	73.0%	87.4%	27.0%	12.6%	0.0%	100.0%	
The Faculty of Medicine	246	94	143	39	0	389	133
	63.2%	70.7%	36.8%	29.3%	0.0%	100.0%	
The Technical Faculty of IT and Design	315	57	743	134	1	1058	192
	29.8%	29.7%	70.2%	69.8%	0.5%	100.0%	
The Faculty of Engineering and Science	227	122	515	171	4	742	297
	30.6%	41.1%	69.4%	57.6%	1.3%	100.0%	
Missing/Do not know		26		28	1		55
		47.2%		50.9%	1.8%		
Total	2056	655	2300	526	7	4213	1188
	48.8%	55.1%	51.2%	44.3%	0.6%	100.0%	

Table 3 shows respondents' average age by faculty. To ensure respondents' anonymity, we do not report the minimum and maximum ages. Compared to 2018, the differences in respondents age distribution has decreased. In the two previous surveys, the Faculty of Medicine had both the youngest (on average) and the most homogenous respondents in terms of age. This is not the case in the 2020 survey. The tendency for students from the Faculty of Humanities to be older on average, and have more age variation, has gradually weakened since 2018.

Table 3. Age by faculty

	Mean	Std. Deviation	N
The Faculty of Social Sciences	21.6	2.9	309
The Faculty of Humanities	22.1	3.8	199
The Faculty of Medicine	21.7	3.7	133
The Technical Faculty of IT and Design	21.9	4.1	192
The Faculty of Engineering and Science	21.9	3.4	295
Total	21.8	3.5	1127

The place of completion of the qualifying exam to AAU provides an indicator of respondents' country of origin (i.e., Danish or international students). Of the respondents, 78.9% reported to have completed their qualifying exam in Denmark and are thus assumed to be Danish. In 2018 and 2019, 78.9% and 82%, respectively, of the respondents reported to have completed their qualifying exam in Denmark. Thus, the closing down or suspension of a number of international programmes in 2019 does not appear to have had a lasting effect on the country of origin for the respondents.

Figures 1a and 1b show the distribution of respondents with a Danish qualifying exam by faculty and gender, respectively. As was the case in both 2018 and 2019, we find the highest share of (presumed) Danish students at the Faculty of Medicine.

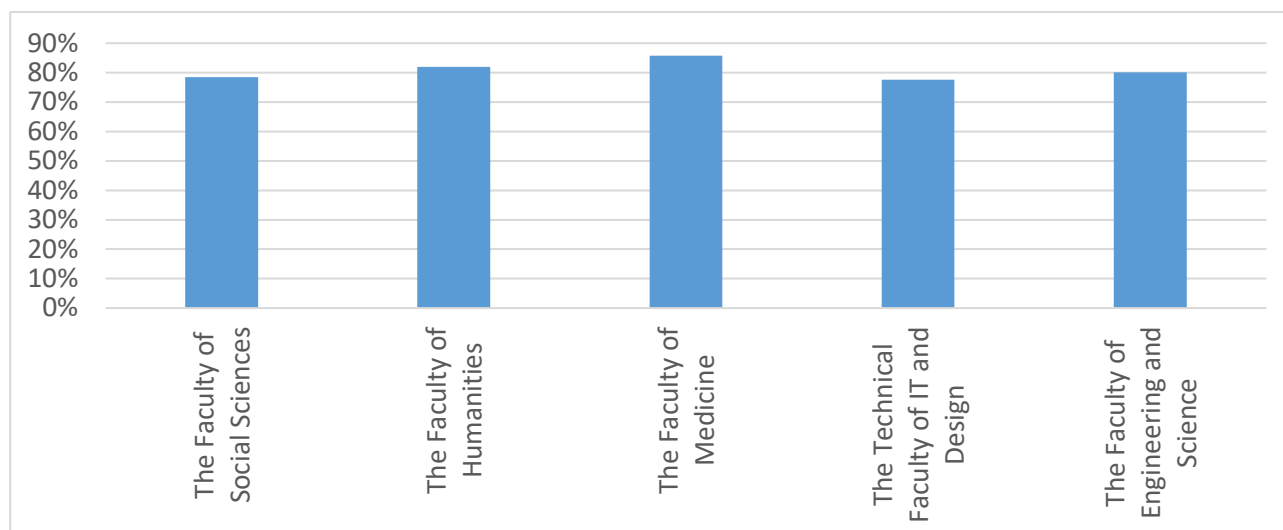


Figure 1a. Share of respondents with a Danish qualifying exam to AAU by faculty (N = 1133).

Figure 1b indicates that the majority of students with an international background in our survey are male.

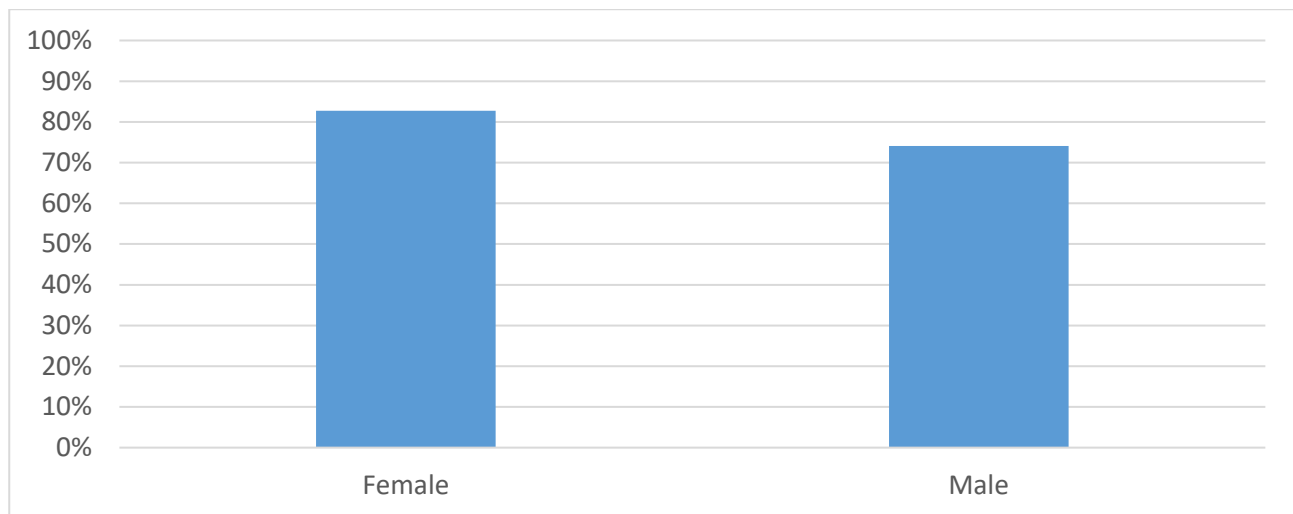


Figure 1b. Share of respondents with a Danish qualifying exam to AAU by gender (N = 1181).

Figure 2 shows the share of respondents (by faculty) with work experience prior to enrolment at AAU. Work experience does *not* include part-time jobs. We find that around half of the respondents had a full-time job for at least six consecutive months before their enrolment at AAU. This share is lowest for respondents from the Technical Faculty of IT and Design (44.8%) and the Faculty of Engineering and Science (45.5%), and highest for respondents from the Faculty of Humanities (55.8%) and the Faculty of Social Sciences (54.4%). These two faculties also accounted for the largest proportions of respondents with work experience prior to enrolment in 2019. However, in 2018, only 43.6% of the respondents from the Faculty of Humanities reported work experience prior to enrolment.

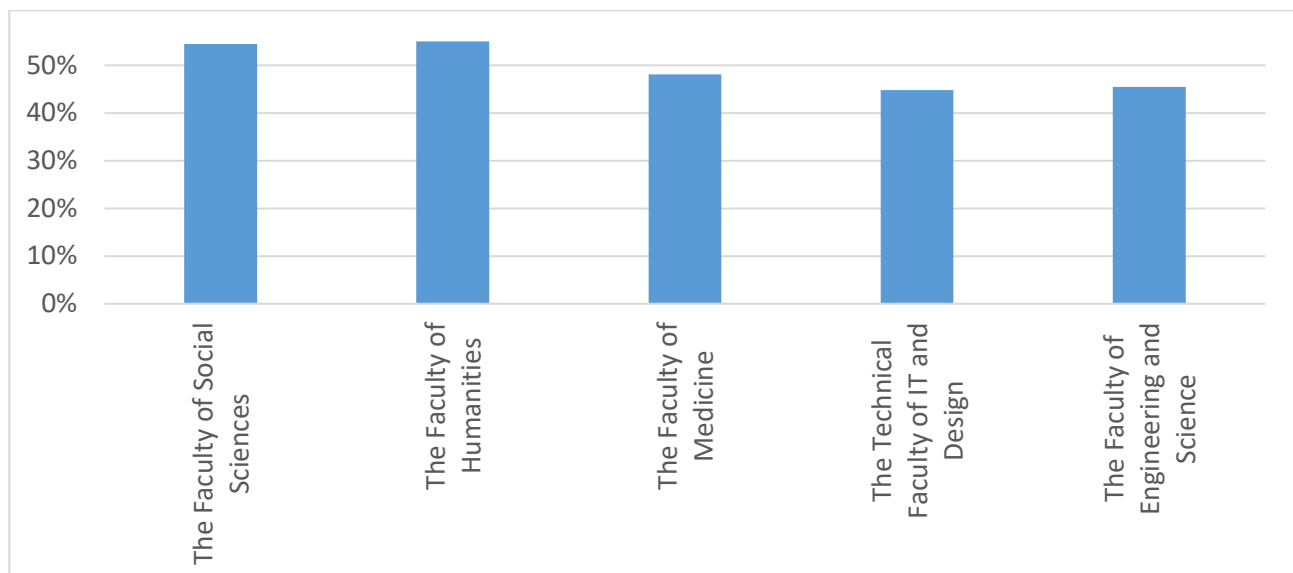


Figure 2. Share of respondents with work experience prior to enrolling at AAU (a full-time job – as an employee – for at least six consecutive months before current enrolment at AAU) by faculty (N = 1133). Differences are significant at the 1% level.

Method: weighted data

Start-up statistics show that men are more inclined than women to found a new business. This difference, which is also apparent in our data (see Figure 3c below), might be reflected in the attitude towards entrepreneurship as a career choice and entrepreneurial self-efficacy (i.e. evaluation of own skills and abilities related to entrepreneurship). Differences in start-up preferences according to field of study might also exist. For these reasons, and because Tables 1 and 2 show evidence of a gender and faculty bias among the respondents, the following tables and figures weight the data according to gender and faculty of enrolment. A conservative approach to weighting is chosen, where the responses are not weighted to the total population but only to reflect the gender and faculty composition of the population, without inflating the number of responses. This weighting is done to avoid any possible exaggerations of the statistical significances of differences.² Appendix A reports the unweighted response frequencies for the total population.

² Owing to missing information on gender and faculty of enrolment for some respondents, the maximum number of weighted observations is 1127.

Student background and considerations regarding entrepreneurship and career choice

Figure 3a shows the 2020 cohort of first-year students' entrepreneurship experience by faculty. For the total population, 5.5% report prior or current entrepreneurial experience, which is lower than 2019, where the corresponding percentage was 7.0. Figure 3a illustrates the variation across faculties, with the Technical Faculty of IT and Design and the Faculty of Engineering and Sciences having the largest proportion of new students with entrepreneurship experience.

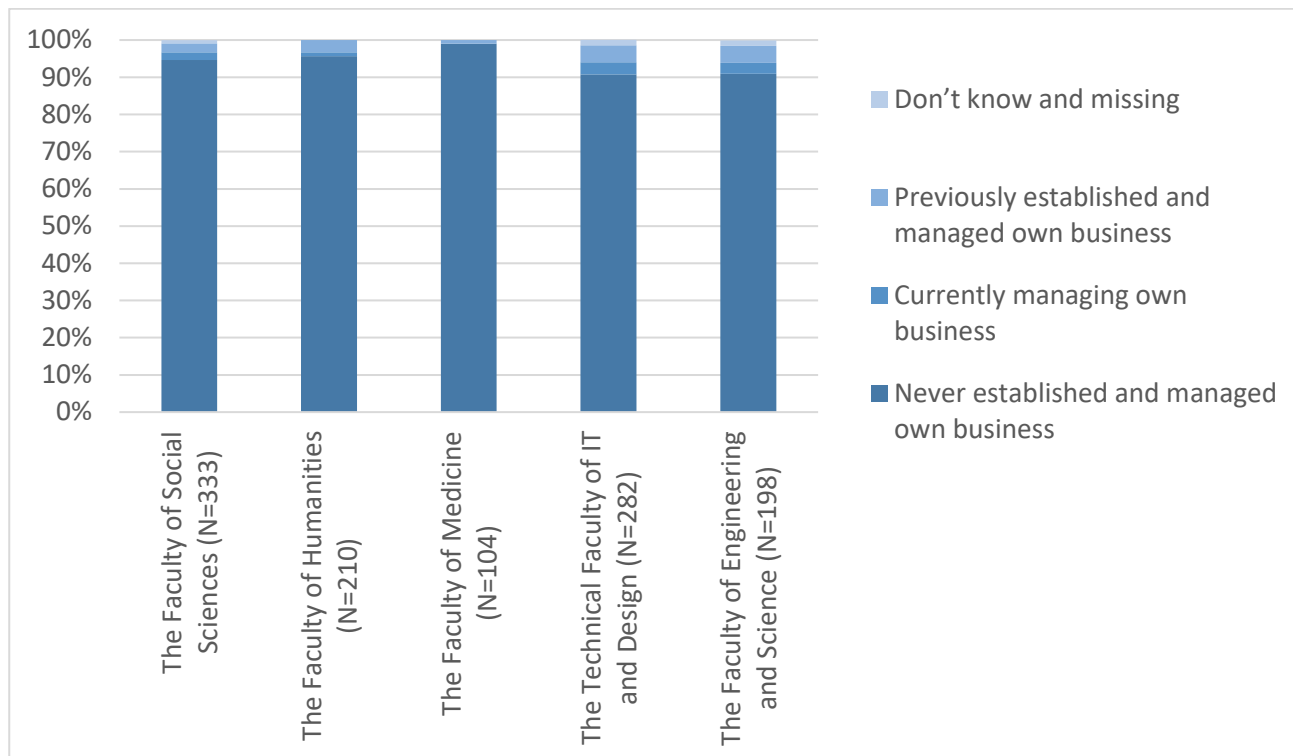


Figure 3a. Entrepreneurship experience (established and managed your own business – either alone or with others) by faculty. N = 1127, weighted data. Differences across faculties in shares that reply 'Previously established and managed own business'/'Currently managing own business' versus 'Never established and managed own business' is significant at the 5% level.

Figures 3b and 3c show entrepreneurship experience based on the location of the qualifying exam and gender, respectively. Figure 3b indicates that a larger proportion of students with an international background have current or prior entrepreneurship experience, than students with a Danish qualifying exam. However, the differences are not statistically significant.

Figure 3c shows that a larger share of male (7.4%) than female students (3.5%) has previously managed or is currently managing their own business. The gender difference is in accordance with the findings in the 2018 and 2019 surveys.

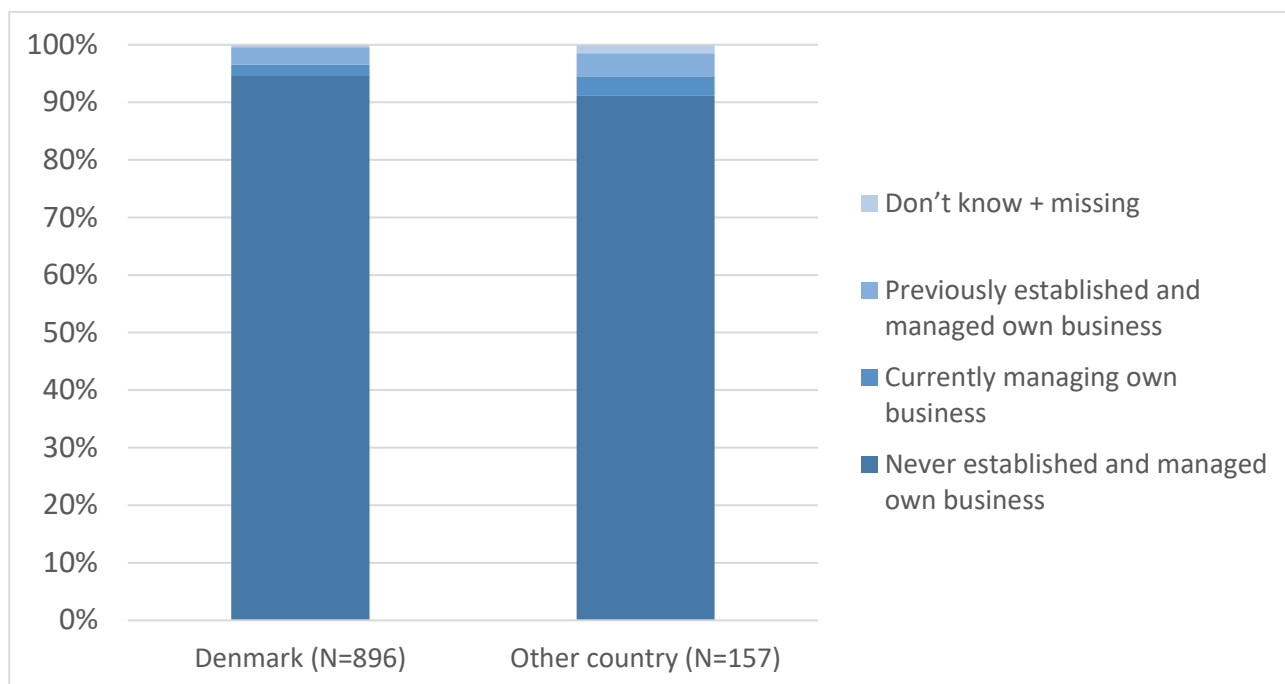


Figure 3b. Entrepreneurship experience (established and managed your own business – either alone or with others) by location of completing the qualifying exam for AAU. N = 1053, weighted data. Differences across location of qualifying exam in shares that reply 'Previously established and managed own business'/'Currently managing own business' versus 'Never established and managed own business' not statistically significant.

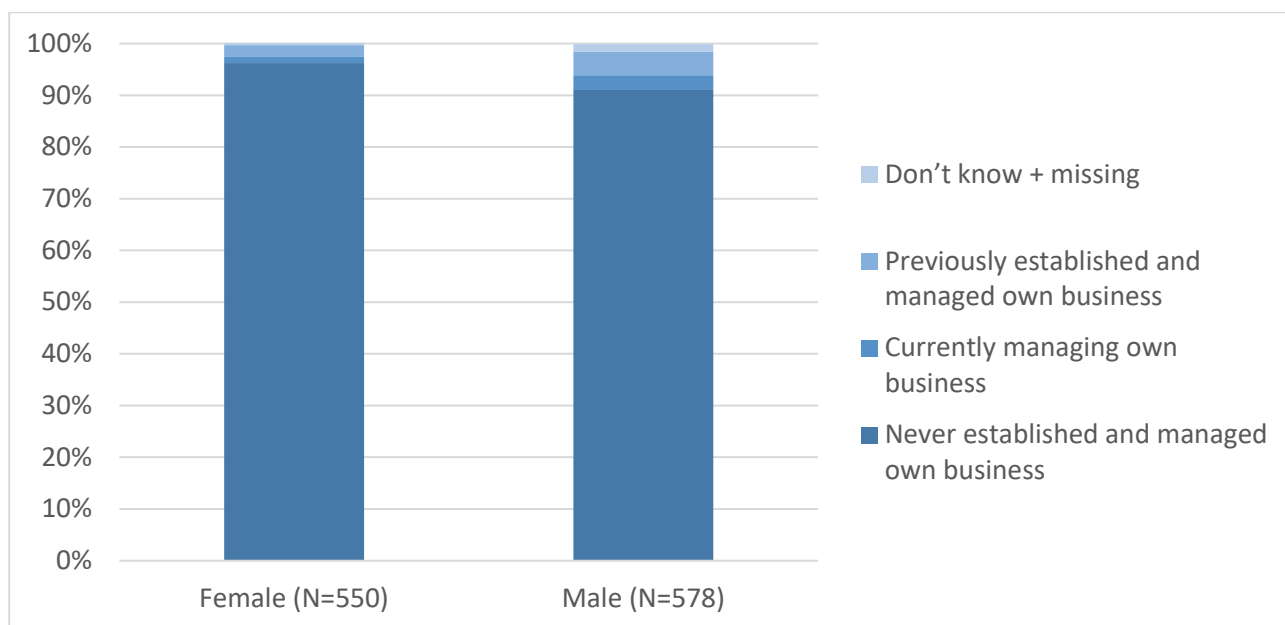


Figure 3c. Entrepreneurship experience (established and managed your own business – either alone or with others) by gender. N = 1127, weighted data. Differences across gender in shares that reply 'Previously established and managed own business'/'Currently managing own business' versus 'Never established and managed own business' is significant at the 1% level.

Figure 4 shows whether the students have parents with entrepreneurial experience by faculty. This information is relevant because several studies have found that the likelihood of entering entrepreneurship significantly increases if one or both parents are or have been entrepreneurs (Sørensen, 2007; Dahl et al. 2009). A recent study (Lindquist & Van Praag, 2015) discussed and investigated whether this likelihood is due mainly to pre-birth or post-birth factors, such as genes (e.g. intelligence, extroversion and pleasure from risk-taking), an inheritance of entrepreneurial work-values during childhood (e.g. a preference for independence) or even the family business, or a greater availability of resources needed for founding and running a business (e.g. knowledge, networks, capital or labour) through their parents. Their findings emphasize the importance of post-birth factors and role modelling (Lindquist & Van Praag, 2015). 38.7% of the respondents to the survey herein replied that one or both parents have entrepreneurial experience. This is slightly lower than in 2019, where 40.7% had parents with entrepreneurial experience. Figure 4 shows that there are few – and no statistically significant – differences between faculties.

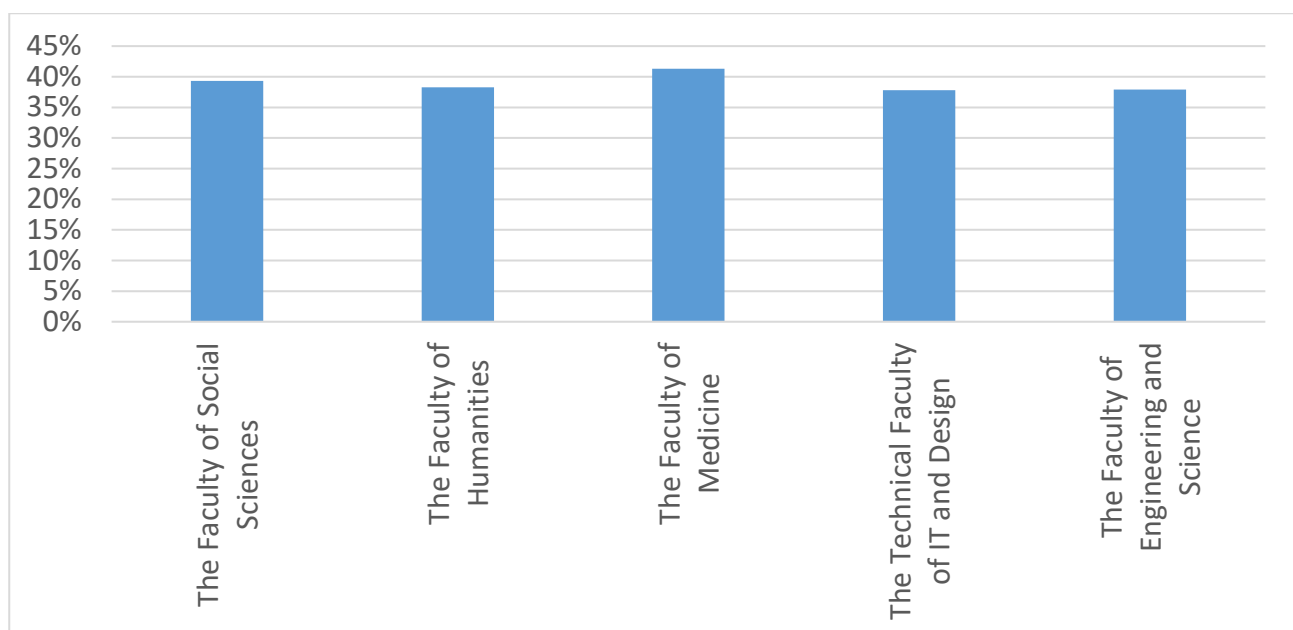


Figure 4. Share of respondents who have at least one parent with entrepreneurship experience. $N = 1127$, weighted data. Differences are not statistically significant.

In Figure 4, parents' entrepreneurial experience is measured based on whether either of the parents have ever established or managed their own business. When looking only at the parents' connection to the labour market over the last 10 years, 20.2% of the respondents answer that 'self-employed' is the best description of their mother and/or father's main connection to the labour market. This is similar to 2019, where 20.4% answered that 'self-employed' is the best description of a least one of their parents' main connection to the labour market.

Work values

Figure 5a shows the respondents' ranking of work values by faculty. Work values categorise different aspects of work to which a given individual can attribute a high or low value, e.g. when deciding on occupational choice. These values are often divided into two main categories – intrinsic and extrinsic values – where the former values relate to the specific work tasks that need to be performed. The intrinsic work values included in the survey are 'the opportunity to develop own skills and abilities',

'visible results of the work', 'the opportunity to work independently', 'varying work tasks', 'exciting work tasks' and 'the work can be carried out satisfactory with the resources available'³. The extrinsic work values in the survey relate to the following four dimensions, as suggested by Kalleberg (1977): finance ('a high income'), convenience ('convenient working hours'), career ('the work is a good stepping stone for my further career') and co-workers ('a good social working environment'). Work values have been used to explain work satisfaction by comparing an individual's work values with the actual work characteristics facing that individual (divided into the same categories). It is important to notice that entrepreneurs – like wage earners – can be motivated by both intrinsic (e.g. exciting work tasks) and/or extrinsic (e.g. high-income work) characteristics. An interesting question is whether students within different faculties or with other characteristics are motivated by different work characteristics, which might affect not only the future decisions of founding a venture but also the performance of such a venture.

In Figure 5a, we see many similarities across the faculties. For example, students of all faculties ranked the same three factors as the most important. These factors are exciting work tasks, the opportunity to develop own skills and abilities, and a good social working environment; the former two are intrinsic values, while the latter is extrinsic. The same three factors were also ranked the highest in the 2018 and 2019 surveys. It should be noted, that although the opportunity to develop own skills and abilities is ranked high by students across all faculties, a lower proportion of students enrolled at the Faculty of Engineering and Science and the Faculty of Social Sciences emphasise this work value compared to students enrolled at the three other faculties.

Differences in work values across faculties are also found in the emphasis on whether the work can be carried out satisfactory with the resources available, the work is a good stepping stone for my further career, high income, visible results of the work, and varying work tasks. That the work can be carried out satisfactory with the resources available is relatively more important to students in the Faculty of Engineering and Science. The work being a good stepping stone for the further career is relatively less important for students in the Faculty of Medicine and relatively more important for students in the Faculty of Social Sciences. High income is relatively less important for students in the Faculty of Humanities, whereas it is ranked high by a larger proportion of students in the Faculty of Engineering and Science and the Faculty of Social Sciences. Visible results of the work are ranked highest by students in the Faculty of Engineering and Science and the Faculty of Medicine. Finally, varying work tasks is relatively more important for students from the Faculty of Medicine where 51.0% include this factor as one of the four most important.

It is notable that a good social working environment is considered important by a high proportion of students, since AAU students spend a significant amount of time on problem-based learning (PBL) in groups, which requires skills related to problem identification and analysis, cooperation, division of labour and potential conflict management. The ability to utilise the resources available in the project group is crucial for a successful outcome. Based on the entrepreneurship literature, the ability to utilise the social network is important for a successful start-up due to capital constraints and the need to obtain resources (Aldrich & Zimmer, 1986; Greve & Salaff, 2003). Therefore, we assume that social skills are important in both PBL project work and entrepreneurship.

³ The latter work value can also be interpreted as an extrinsic work value. In general, there are different interpretations of what constitutes intrinsic and extrinsic work values, but we follow the categorisation by Kalleberg (1977).

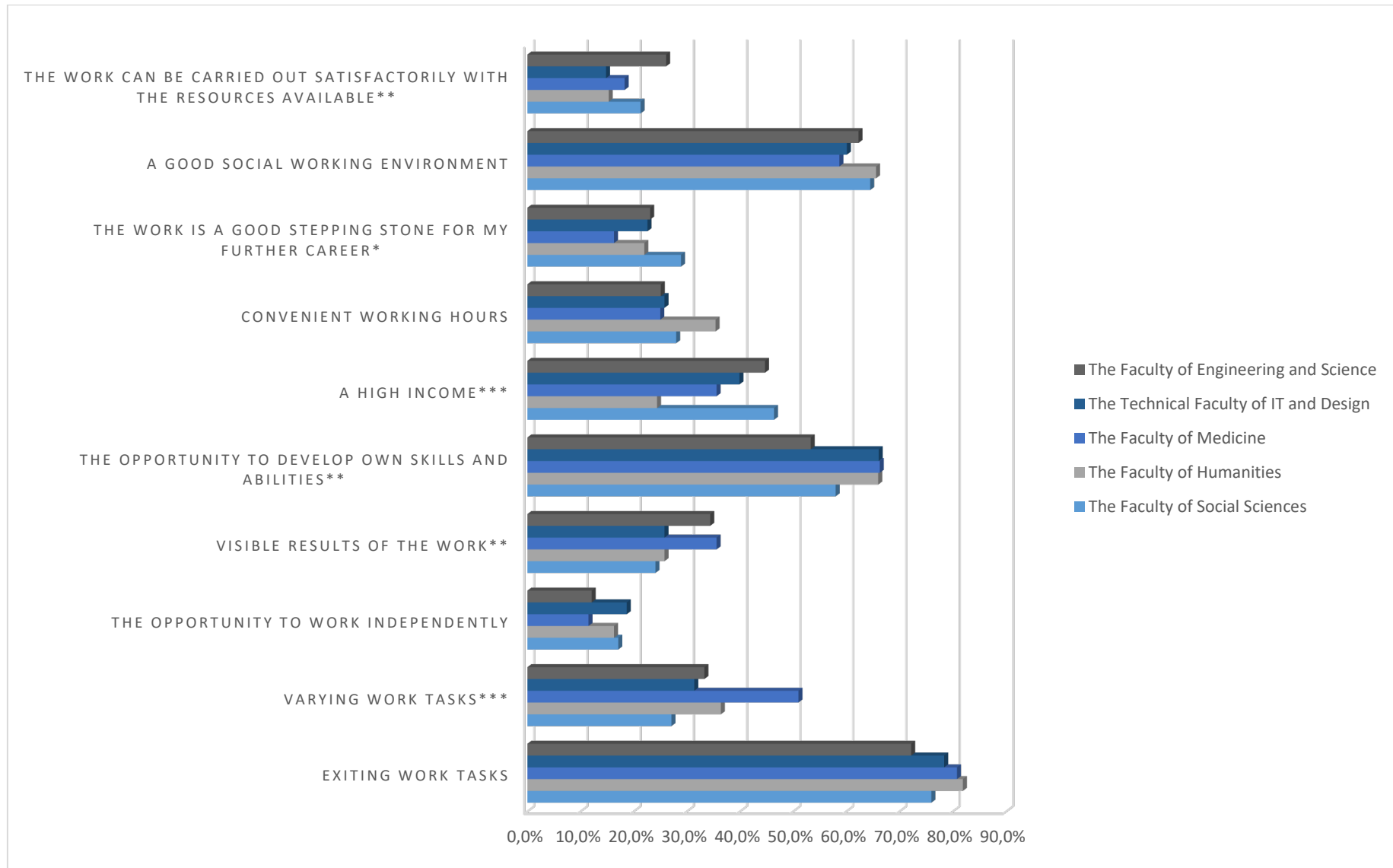


Figure 5a. Ranking of important factors when choosing a career after graduation (each respondent selected the four most important) by faculty. N = 1127, weighted data. ***differences are significant at the 1% level and **5% level.

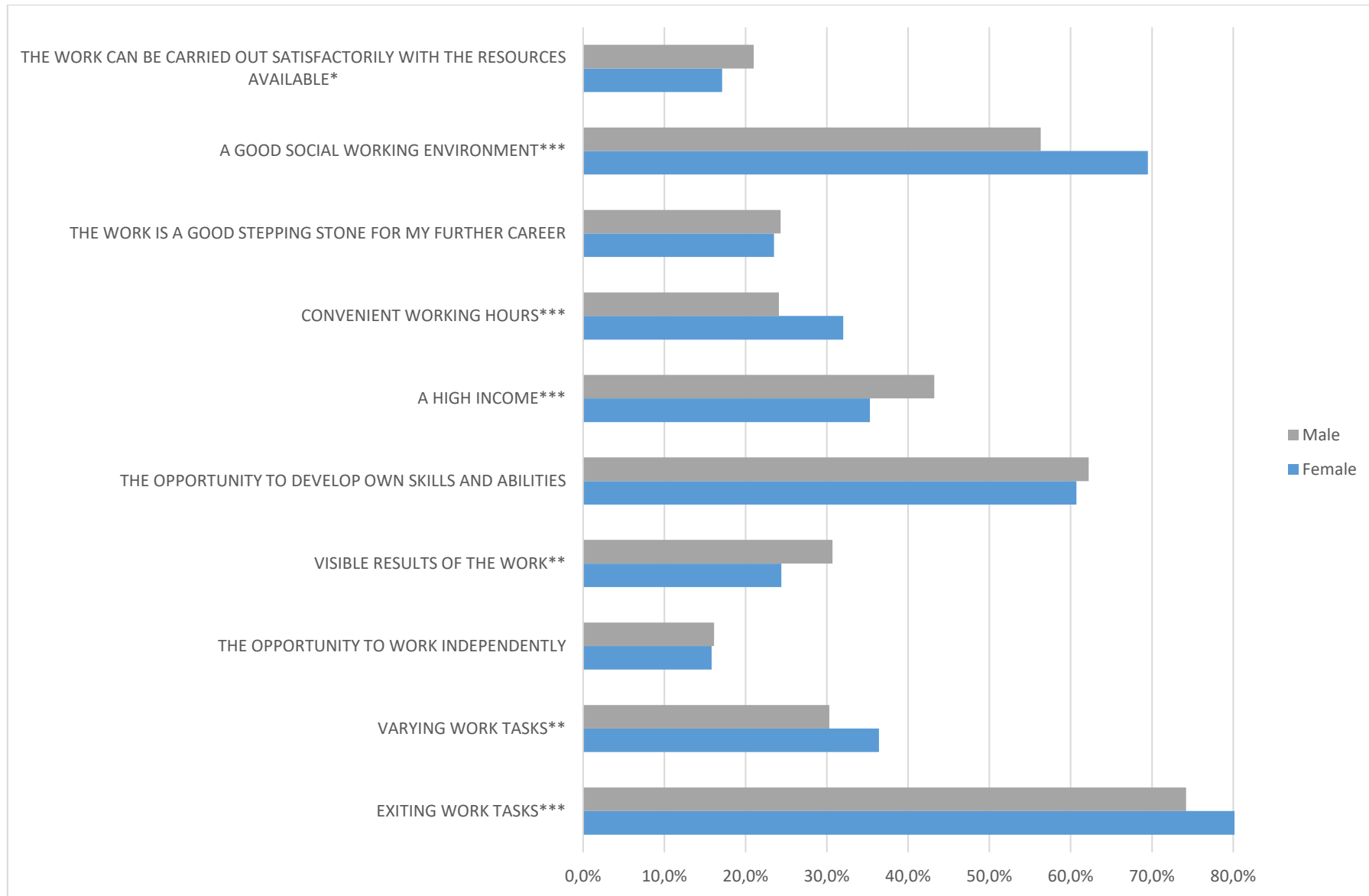


Figure 5b. Ranking of important factors when choosing a career after graduation (each respondent selected the four most important) by gender. N = 1127, weighted data. ***differences are significant at the 1% level and *10% level.

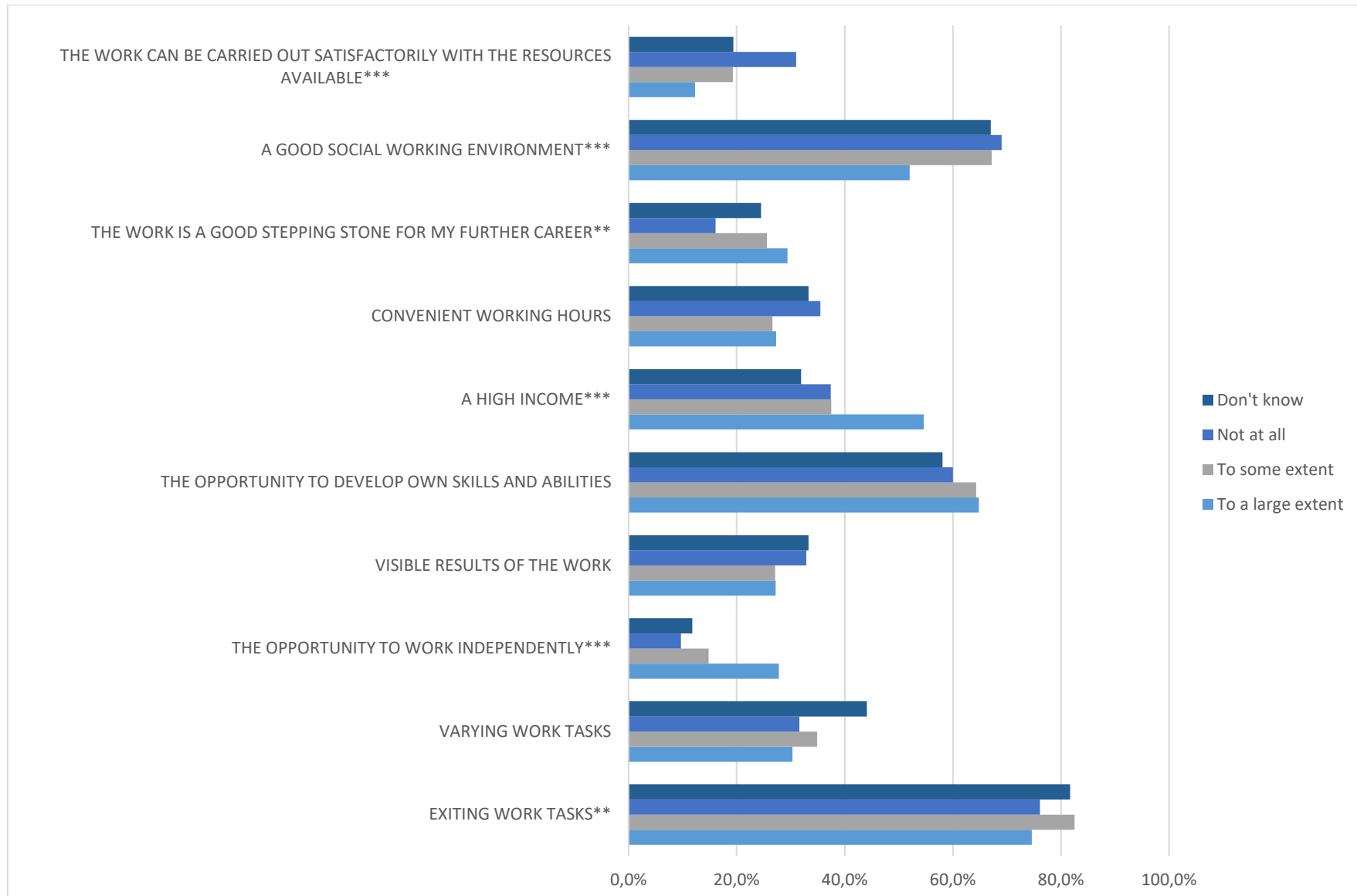


Figure 5c. Ranking of important factors when choosing a career after graduation (each respondent has selected the four most important) by perception of whether it is an attractive career choice to establish and manage your own business. N varies between 1091 and 1093, weighted data. ***differences are significant at the 1% level, **5% level and *10% level.

Figure 5b shows respondents' ranking of work values by gender. There are more gender-based differences in work values compared to previous years' surveys. Female respondents rank a good social working environment, convenient working hours, varying work tasks and exiting work task relatively more important than male respondents. Male respondents, on the other side, rank that the work can be carried out satisfactory with the available resources as slightly more important than females, and they are also more likely to rank a high income and visible results of the work as important.

Figure 5c shows respondents' ranking of work values by their perception of whether entrepreneurship is an attractive career choice. Those who to a large extent perceive entrepreneurship as an attractive career choice, rank the opportunity to work independently, a high income, and that work is a good stepping stone for my future career relatively high. The high ranking of the former work value – independence – was expected. However, the high ranking of the latter work value – career prospects – is interesting, because the value of entrepreneurship experience for the future career (outside of entrepreneurship) is less clear in the literature. This is partly due to ambiguous results regarding learning by doing and failure (Nielsen & Sarasvathy, 2016). Moreover, it is unclear whether entrepreneurship experience is valued on the labour market and, thus, whether entrepreneurship experience results in a wage premium (e.g., Luzzi & Sasson, 2016; Manso, 2016) or a wage penalty (e.g., Mahiou et al., 2019) in the labour market. Those who perceive entrepreneurship as an attractive career choice rank the work can be carried out satisfactorily with the resources available and a good social working environment as relatively less important compared to students who do not find entrepreneurship an attractive career choice.

We also looked at the relation between the respondents' country of completion of qualifying exam and assessment of work values, but only found significant differences in terms of students with a qualifying exam from abroad ranking a high income more important than students with a qualifying exam from Denmark. Finally, we grouped respondents by parents with entrepreneurship experience, but only found a significant difference – and only weakly so – in terms of children of parents with entrepreneurship experience valuing the opportunity to work independently as more important than students whose parents do not have entrepreneurship experience. These results are available upon request.

Assessment of entrepreneurship as a career choice

Table 4a shows the respondents' perceptions of whether entrepreneurship is an attractive career choice by faculty. As was the case in 2019, differences across faculties are not statistically significant.

Table 4a. Perception of whether establishing and managing your own business is an attractive career choice by faculty (weighted data). Differences across faculties in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

	To a large extent	To some extent	Not at all	Don't know	Total
The Faculty of Social Sciences	75	174	49	24	322
	23.3%	54.0%	15.2%	7.5%	100.0%
The Faculty of Humanities	30	124	31	18	203
	14.8%	61.1%	15.3%	8.9%	100.0%
The Faculty of Medicine	14	57	21	11	103
	13.6%	55.3%	20.4%	10.7%	100.0%
The Technical Faculty of IT and Design	62	156	28	25	271
	22.9%	57.6%	10.3%	9.2%	100.0%
The Faculty of Engineering and Science	45	106	26	15	192
	23.4%	55.2%	13.5%	7.8%	100.0%
Total	226	617	155	93	1091
	20.7%	56.6%	14.2%	8.5%	100.0%

Table 4b indicates that respondents with parent entrepreneurs tend to perceive entrepreneurship as a relative more attractive career choice than those whose parents do not have entrepreneurship experience. However, contrary to previous years, the differences across parents' entrepreneurship experience in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

Table 4b. Perception of whether establishing and managing your own business is an attractive career choice by parents' experience with entrepreneurship (weighted data). Differences across parents' entrepreneurship experience in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

	To a large extent	To some extent	Not at all	Don't know	Total
Parents do not have entrepreneurship experience	119	373	98	70	660
	18,0%	56,5%	14,8%	10,6%	100,0%
Parents do have entrepreneurship experience	108	243	57	24	432
	25,0%	56,3%	13,2%	5,6%	100,0%
Total	227	616	155	94	1092
	20,8%	56,4%	14,2%	8,6%	100,0%

Table 4c reports the perception of entrepreneurship as an attractive career choice by own entrepreneurship experience. Entrepreneurship experience prior to enrolment at university is likely to affect the respondent's attitude towards entrepreneurship. On the one hand, the literature finds that

although, on average, entrepreneurs earn less than they could as an employee (Hamilton, 2000) and experience higher levels of work-family conflict (Parasuraman & Simmers, 2001), they express greater work satisfaction than do wage-earners (Hundley, 2001). This greater work satisfaction by entrepreneurs is explained by a more attractive work environment with greater independence and flexibility that comes with being your own boss. Hence, a previous taste of entrepreneurship could encourage a future start-up through learning by doing and generating a positive attitude towards entrepreneurship. On the other hand, the growing literature on entrepreneurial learning considers both positive and negative effects of previous start-up experience on the likelihood of a restart (Nielsen & Sarasvathy, 2016). Previous failure experience, for instance, could serve as a signal of one's innate entrepreneurial skills and abilities (i.e. passive learning) and discourage restart through lower entrepreneurial self-efficacy. Add to this the stigma of failure, which could have both socio-psychological consequences for the individual and affect the likelihood of attracting resources for future ventures (e.g. capital and employees).

The results shown in Table 4c do indicate that those who have entrepreneurship experience are more positive about future entrepreneurship, but it should be taken into consideration that the number of students with entrepreneurship experience is low, and the differences across own entrepreneurship experience in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

Table 4c. Perception of whether establishing and managing your own business is an attractive career choice by experience with entrepreneurship (weighted data). Differences across own entrepreneurship experience in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

	To a large extent	To some extent	Not at all	Don't know	Total
Currently managing own business	15	6	3	0	24
	62.5%	25.0%	12.5%	0.0%	100.0%
Previously established and managed own business	15	17	2	2	36
	41.7%	47.2%	5.6%	5.6%	100.0%
Never established and managed own business	197	591	150	91	1029
	19.1%	57.4%	14.6%	8.8%	100.0%
Total	227	614	155	93	1089
	20.8%	56.4%	14.2%	8.5%	100.0%

Finally, Table 4d shows that a larger proportion of male than female students find that entrepreneurship to a large extent is an attractive career choice. This aligns with our expectations. However, when we compare the percentages who answered 'to a large'/'some extent' to 'not at all', the differences across gender are not statistically significant. This is contrary to what we found in 2018, where differences were highly significant (1% level), and in 2019, where they were significant at the 5% level.

Table 4d. Perception of whether it is attractive career choice to establish and manage your own business by gender (weighted data). Differences across gender in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

	To a large extent	To some extent	Not at all	Don't know	Total
Female	87	320	82	51	540
	16,1%	59,3%	15,2%	9,4%	100,0%
Male	140	297	72	42	551
	25,4%	53,9%	13,1%	7,6%	100,0%
Total	227	617	154	93	1091
	20,8%	56,6%	14,1%	8,5%	100,0%

As in the previous years, we also grouped the perception of entrepreneurship by location of completing the qualifying exam for AAU but found only small and statistically insignificant differences between Danish and international students. The results are available upon request.

Active steps towards establishing a business

Figure 6 shows (by faculty) the share of respondents who have taken active steps towards establishing their own business, which is labelled as nascent entrepreneurship in the literature.⁴ This is important to investigate further since the road from entrepreneurial attitude and intention to a realised successful start-up goes through active steps. 21.6% of the respondents, who are not currently managing their own business or have not previously established and managed their own business, have taken active steps towards establishing their own business. For the majority, such 'active steps' include discussing a business idea with others or preparing a business plan.

The Faculty of Social Sciences has the highest proportion of students (26.0%) who have taken active steps towards establishing their own business. In 2019, students enrolled at the Technical Faculty of IT and Design, closely followed by the Faculty of Social Sciences, was the faculty where the highest proportion had taken active steps towards establishing their own business. In the current survey, the Technical Faculty of IT and Design is at the same level as the Faculty of Humanities. At the other end of the scale, we find (similar to the two last years' surveys) that relatively few students from the Faculty of Medicine (12.2%) have taken active steps towards establishing their own business.

⁴ This question was posed only to students who are not currently managing their own business or have not previously established and managed their own business.

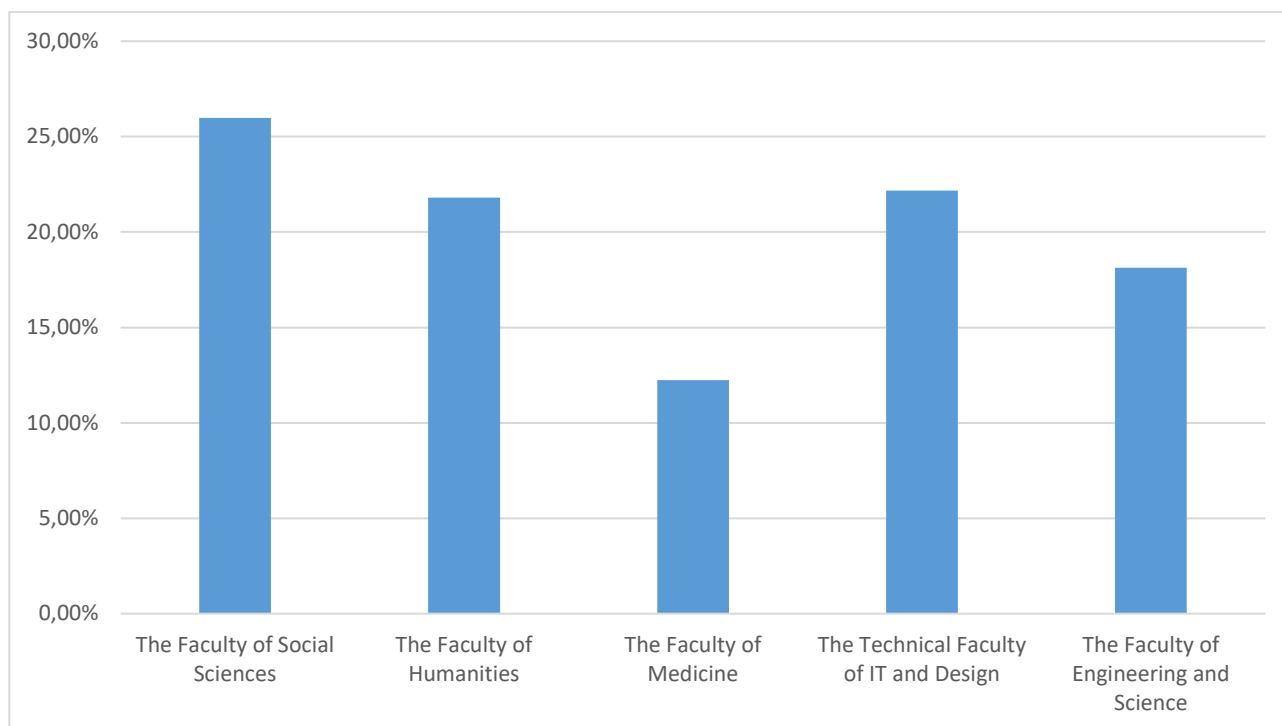


Figure 6. Share of respondents who have taken at least one active step[#] towards establishing a business by faculty. N = 1009, weighted data. Differences are statistically significant at the 5% level.

[#] Steps include (i) discussing a business idea with others or preparing a business plan; (ii) participating in entrepreneurship counselling or an entrepreneurship incubator; (iii) attempting to obtain funding for a business (e.g. from a family member, friend, bank or similar); and/or (iv) contacting potential co-founders, employees, suppliers and/or customers.

We also explored possible difference in relation to taking active steps towards establishing a business across gender, parents' entrepreneurship experience, country of qualifying exam, and perception of entrepreneurship as an attractive career choice. Confirming our expectations, we find that more male than female students have taken active steps towards establishing their own business (26.5% and 16.8%, respectively). Furthermore, we find that students who have parents with entrepreneurship experience are more likely to have taken active steps towards establishing a business compared to students who have parents without entrepreneurship experience (26.6% and 18.6%, respectively). We find no relation between having taken active steps towards establishing a business and whether the students have completed their qualifying exam in or outside of Denmark. Finally, 25.5% of students who find entrepreneurship an attractive career choice, have taken active steps towards establishing their own business. This figure is considerably higher than the 9.4% amongst those who do not find entrepreneurship an attractive career choice, but nonetheless have taken such active steps towards establishing a business (these steps might have contributed to discourage them). All these findings are in accordance with the findings for the two previous years.

Self-efficacy

According to the theory of planned behaviour within the psychology literature, three factors are prerequisites for a given planned behaviour: attitude, subjective norms and perceived behavioural control (including self-efficacy and controllability) (Rauch & Hulsink, 2015). Applying this to entrepreneurial behaviour, individuals will act entrepreneurial if they (1) see the behaviour as positive,

(2) believe that society or important others see the behaviour as positive and (3) believe they can successfully perform the tasks needed to act entrepreneurially (self-efficacy) and consider it the main determinant of entrepreneurial success (controllability). Both entrepreneurship experience and entrepreneurship education can affect these three factors.

The students' self-efficacy was explored in the survey. We asked students *without* entrepreneurial experience to assess their own skills and abilities for establishing and managing a business, and Table 5a reports the results by faculty. Consistent with the previous years' surveys, we find that students from the Faculty of Social Sciences indicate the highest entrepreneurial self-efficacy, with 27.6% of the students reporting that they to a large or some extent have the skills and abilities needed to establish and manage their own business. Also consistent with the previous surveys, we find the lowest entrepreneurial self-efficacy among students from the Faculty of Medicine. Within this group, 76.2% report that they do not at all have the skills and abilities needed to establish and manage their own business, and very few reports to a large extent (2%) or to some extent (12.9%). These results reflect a lower orientation towards entrepreneurship for this group, which is supported by the results presented in Figure 6.

Table 5a. Perception of having the skills and abilities needed to establish and manage your own business by faculty – respondents with no entrepreneurship experience (weighted data). Differences across faculty in shares that reply 'to a large'/'some extent' versus 'not at all' are significant at the 10% level.

	To a large extent	To some extent	Not at all	Don't know	Total
The Faculty of Social Sciences	8	77	194	29	308
	2.6%	25.0%	63.0%	9.4%	100.0%
The Faculty of Humanities	5	36	130	23	194
	2.6%	18.6%	67.0%	11.9%	100.0%
The Faculty of Medicine	2	13	77	9	101
	2.0%	12.9%	76.2%	8.9%	100.0%
The Technical Faculty of IT and Design	3	59	160	28	250
	1.2%	23.6%	64.0%	11.2%	100.0%
The Faculty of Engineering and Science	1	36	112	25	174
	0.6%	20.7%	64.4%	14.4%	100.0%
Total	19	221	673	114	1027
	1.9%	21.5%	65.5%	11.1%	100.0%

Tables 5b, 5c and 5d show the entrepreneurial self-efficacy for students categorised by parents' entrepreneurship experience, gender and location of completing the qualifying exam. Compared to the previous years, we find larger and statistically more significant differences between the respondents with and without parent entrepreneurs, the former group having a more positive assessment of their skills and abilities.

Table 5b. Perception of having the skills and abilities needed to establish and manage your own business by parents' experience with entrepreneurship – respondents with no entrepreneurship experience (weighted data). Differences across parents' entrepreneurship experience in shares that reply 'to a large'/'some extent' versus 'not at all' are significant at the 1% level.

	To a large extent	To some extent	Not at all	Don't know	Total
Parents do not have entrepreneurship experience	6	120	432	71	629
	1.0%	19.1%	68.7%	11.3%	100.0%
Parents have entrepreneurship experience	13	101	242	43	399
	3.3%	25.3%	60.7%	10.8%	100.0%
Total	19	221	674	114	1028
	1.8%	21.5%	65.6%	11.1%	100.0%

We also find considerable differences between male and female respondents' assessments of their skills and abilities for managing their own business. Of the students, 27.0% males and only 19.7% females reply that they 'to a large' or 'some extent' have the skills and abilities needed to establish and manage their own business. The gap between male and female students has, however, narrowed compared to previous years.

Table 5c. Perception of having the skills and abilities needed to establish and manage your own business by gender – respondents with no entrepreneurship experience (weighted data). Differences across gender in shares that reply 'to a large'/'some extent' versus 'not at all' are significant at the 1% level.

	To a large extent	To some extent	Not at all	Don't know	Total
Female	6	96	356	60	518
	1.2%	18.5%	68.7%	11.6%	100.0%
Male	13	125	318	54	510
	2.5%	24.5%	62.4%	10.6%	100.0%
Total	19	221	674	114	1028
	1.8%	21.5%	65.6%	11.1%	100.0%

In accordance with last year's survey, but opposed to 2018, we find no statistically significant differences between students with a Danish and international qualifying exam in relation to their assessment of own skills and abilities for entrepreneurship. This is in line with the above-mentioned finding that the Danish and international students' perception of entrepreneurship as an attractive career choice do not differ significantly either.

Table 5d. Perception of having the skills and abilities needed to establish and manage your own business by location of completing the qualifying exam for AAU – respondents with no entrepreneurship experience (weighted data). Differences across location of completing the qualifying exam in shares that reply 'to a large'/'some extent' versus 'not at all' are not statistically significant.

	To a large extent	To some extent	Not at all	Don't know	Total
Denmark	16	181	542	91	830
	1.9%	21.8%	65.3%	11.0%	100.0%
Other country	2	27	93	17	139
	1.4%	19.4%	66.9%	12.2%	100.0%
Don't know	0	14	39	6	59
	0.0%	23.7%	66.1%	10.2%	100.0%
Total	18	222	674	114	1028
	1.8%	21.6%	65.6%	11.1%	100.0%

Table 6 includes only those students who report that they have entrepreneurial experience. As we expected, the vast majority of this group (82.0%) reports that they to a large or some extent have the skills and abilities to manage their own business. This is in accordance with the findings in 2018 and 2019. Owing to the low number of respondents with entrepreneurial experience, the distribution of perceptions is not reported according to faculty, parents' entrepreneurship experience, gender, or place of qualifying exam.

Table 6. Perception of having the skills and abilities needed to manage your own business – respondents with entrepreneurship experience (weighted data).

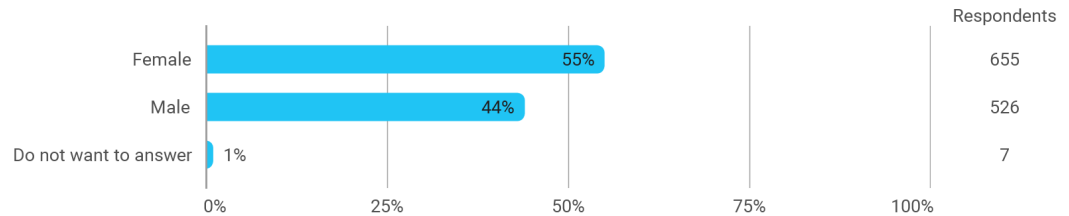
	Frequency	Percent
To a large extent	8	13.1%
To some extent	42	68.9%
Not at all	8	13.1%
Don't know	3	4.9%
Total	61	1

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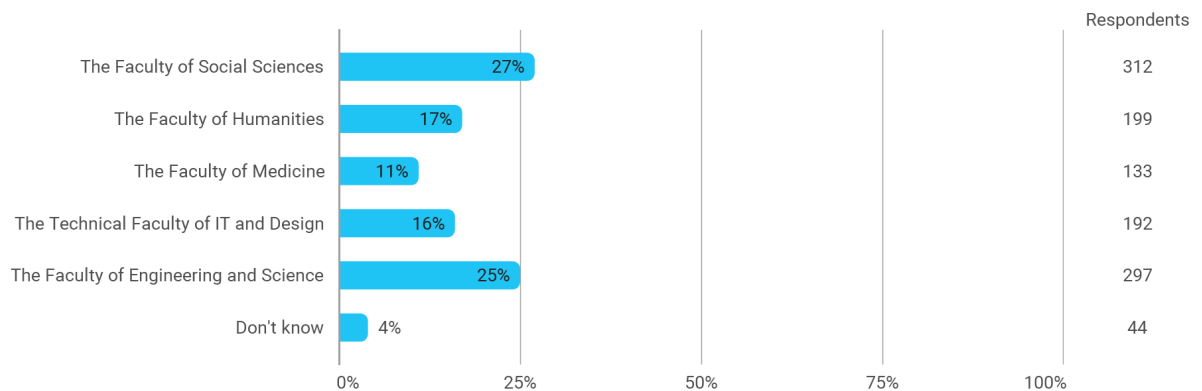
Appendix A: Questionnaire and simple frequencies (unweighted)

Please state your gender

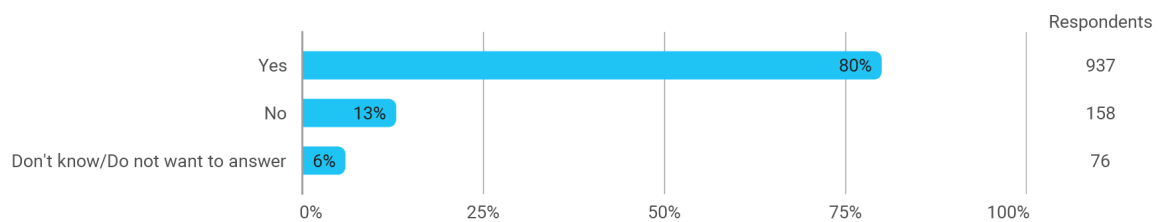


Please state your year of birth *[open answer category]*

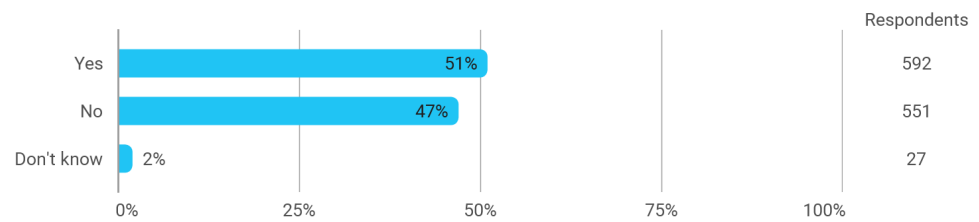
In which faculty are you enrolled at AAU?



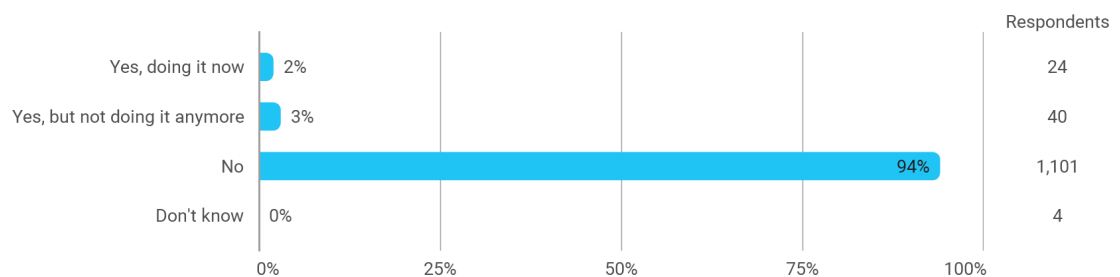
Did you complete the qualifying exam (excluding supplementary courses) for AAU in Denmark?



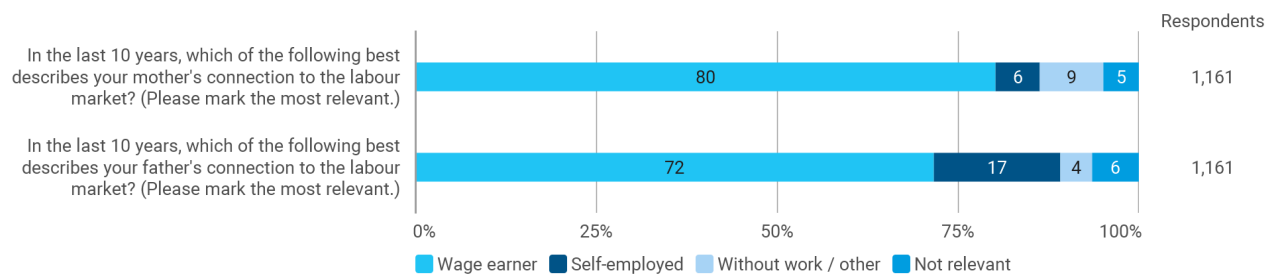
Have you ever had a full-time job (as an employee) for at least six consecutive months before enrolling in your current programme at AAU?



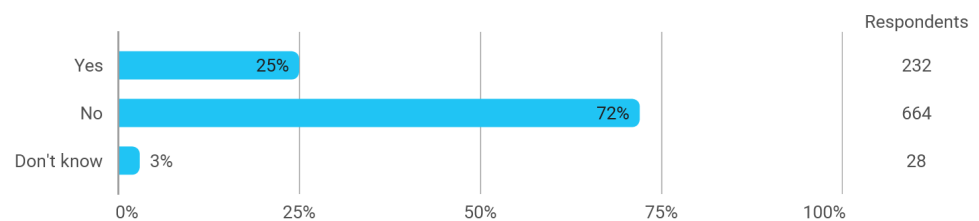
Have you ever established and managed your own business (either alone or with others)?



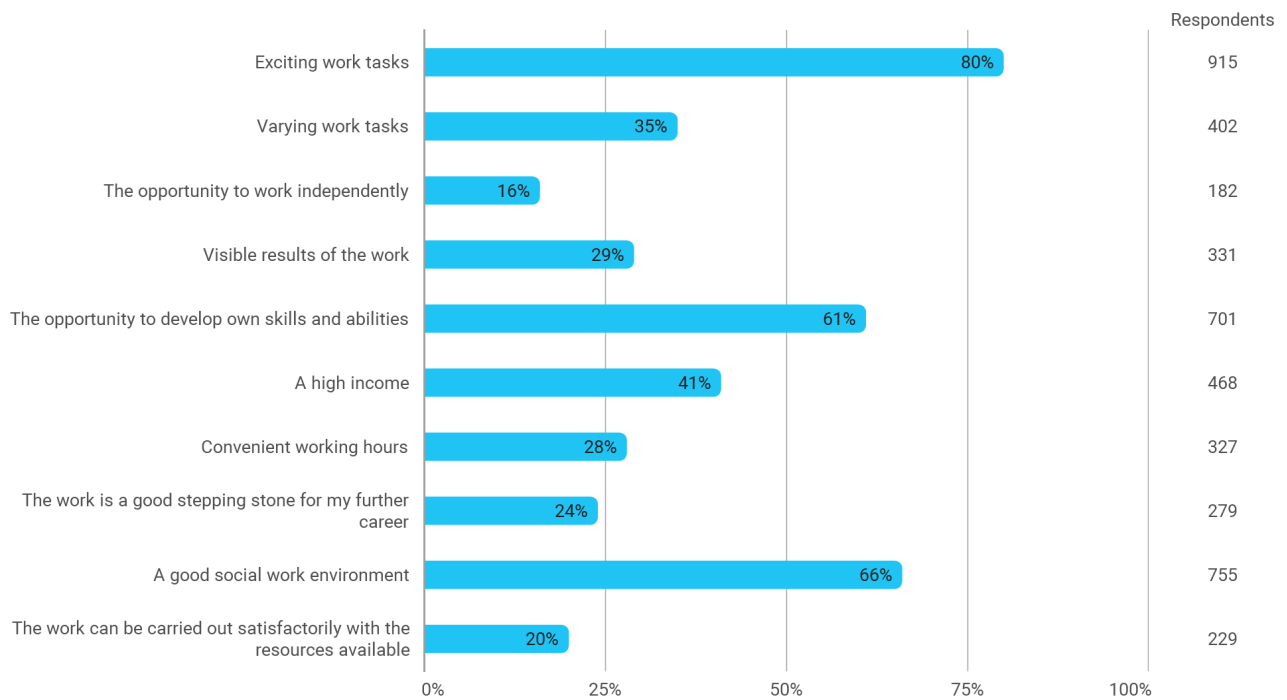
Parents' connection to the labour market



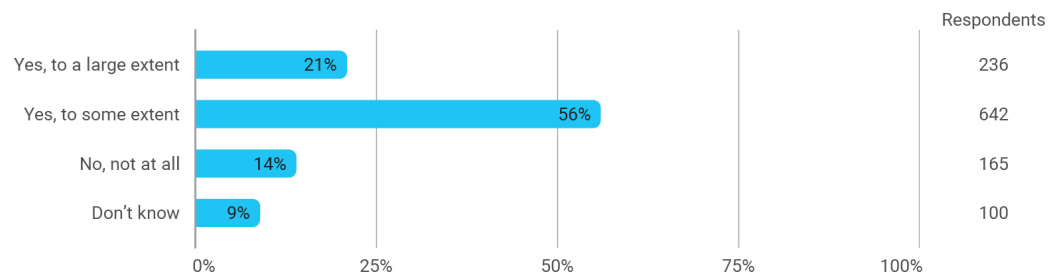
Have at least one of your parents ever established and managed their own business?



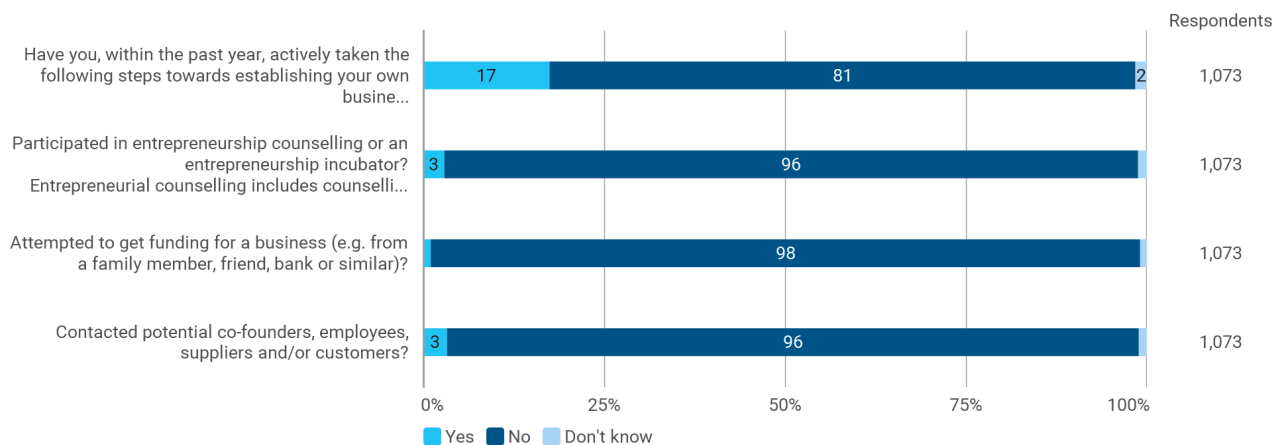
When choosing a career after graduation, which of the following factors are most important to you? Please choose the four most important.



Do you find the idea of establishing and managing your own business an attractive career choice?



Active steps towards establishing a business



Skills and abilities needed to establish and manage own business (students without entrepreneurship experience)/ Skills and abilities needed to manage own business (students with entrepreneurship experience)

